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WHAT IS PEAK ALL ABOUT?

By Nicole Axworthy

ENGINEERING DIMENSIONS

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PEO is ready to roll out its new Practice Evaluation and Knowledge (PEAK) program this month, so we're dedicating this issue to providing you with every-

thing you need to know about this unique initiative. Starting on page 22, you'll find out why the PEAK program is an essential tool for PEO to obtain an up-to-date regulatory profile of both practising and non-practising licence holders, and to provide the public with assurance that practising members are maintaining their qualifications. Currently, PEO has no way of knowing if members are keeping up to date after they obtain their licence.

Additionally, the PEAK program is designed to encourage individualized continuing knowledge development. PEO has spent the last three years creating a suitable program that is tailored to each practising licence holder's environment, and leaves it up to them to find the continuing knowledge activities that are most relevant under the broadly interpreted technical opportunities that apply to the program (see p. 24).

In "What members want to know about PEAK" (p. 26), we're also sharing a selection of the most commonly asked questions PEO has received about the PEAK program.

The first step of the program is to declare if you are practising or not practising professional engineering. We know the distinction can sometimes be blurry. Many licence holders work in other professions, but in some cases they might still be carrying out acts that fall under the definition of

engineering in the *Professional Engineers Act*. PEO's director of policy and professional affairs, Bernard Ennis, P.Eng., outlines how you can determine if you are practising or not in the appropriately titled "Are you a practising professional engineer?" article on page 29.

This issue, we also include a summary of the annual engineering compensation survey, provided by the Ontario Society of Professional Engineers (OSPE) and Mercer Ltd. If you're a member of OSPE, you have free access to the full report. If you're not, this summary is the next best thing and a must-read for those who are, employ or work with female engineers (p. 10).

You'll also find that we're bringing back our Profile column, which features professional engineers who work in various aspects of the profession and are doing amazing things—we thought you might want to know a little about what your fellow engineers are up to. In "Finding meaning (and customers and profits) in social media data" (p. 21), PEO's communications manager, Duff McCutcheon, profiles Ebrahim Bagheri, PhD, P.Eng., a Ryerson University professor who is creating cutting-edge software that has much potential. If you are or know someone who is deserving of this space in a future issue, don't hesitate to share your suggestions: naxworthy@peo.on.ca.

Finally, our annual general meeting and Order of Honour gala are fast approaching. This year, we've been invited to Thunder Bay, Ontario for the events, and we hope you'll join us (visit www.peo.on.ca to register). Look out for full coverage of the events in upcoming issues of *Engineering Dimensions*. **e**

THIS ISSUE After a lengthy gestation period, PEO is just about ready to put its Practice Evaluation and Knowledge (PEAK) initiative into effect. Thanks to a healthy give-and-take between members and the program's designers, it's expected that PEAK will provide PEO with an extensive database to help members record knowledge activities and reaffirm their commitment to ethical engineering practice.

SUSTAINABILITY OF OUR PROFESSION

By George Comrie, MEng, P.Eng., CMC, FEC



One of the purposes of Engineers Canada is sustainability of the profession. In practical terms, this means that between 15 per cent and 25 per cent of the operational resources of that organization are supposed to be expended on activities and programs intended to sustain and enhance the self-regulating engineering profession in Canada. Clearly, the provincial/territorial engineering regulators like PEO that own Engineers Canada have a strong interest in this objective. As I have noted previously, our predecessors sought and won the responsibility and authority to regulate engineering on behalf of the public in the belief that both the public and the profession—and its members—would benefit most from such an arrangement.

For this final message of my term as your president, I would like to reflect briefly on the state of our profession: Are we sustaining it? How do we measure our progress? Are we content with that progress? And if not, what should we do about it?

To me, sustainability of our profession has mainly to do with how engineering—and its regulation—are perceived by five key stakeholder groups:

- the public at large;
- governments at all levels;
- consumers of engineering services;
- current members of the profession; and
- those considering entering the profession.

For each of those stakeholder groups we have slightly different objectives. We want the public to understand and respect the important contribution professional engineers make to society, and to trust us to protect their interests. We want government to respect our self-regulatory status and not undermine or interfere with our discharge of the responsibilities they have given us. We want consumers of engineering services, whether employers or clients, to value and compensate for those services appropriately. We want members of the profession to be satisfied with the rewards, tangible and intangible, they receive for their work. And we want potential future members of the profession to see engineering as an attractive and rewarding career. Most of all, we want to have measurable influence with all our stakeholders. Our self-regulating profession is sustainable only to the extent that these criteria are met.

So how are we doing at achieving these objectives? Public opinion surveys of attitudes towards various professions have suggested that, while engineers are generally respected and trusted, their work and contributions to society are not well understood, and are underappreciated. A 2015 report of the Queen Elizabeth Prize for Engineering (www.qeprize.org/report), whose findings were based on a survey of 10,000 people in 10 countries, noted that:

- Engineering tops the list of professions seen as most vital for economic growth;
- Fifty-seven per cent believe engineering is critical in solving the world's problems;
- Engineering is seen as a driver of innovation; and
- Seventy-one per cent of people think engineers' contribution to society is undervalued, and they deserve much more recognition.

A LACK OF INFLUENCE

Over the past 40 years, incomes of practising professional engineers in Canada have not kept pace with those of other senior professions, such as law and medicine. This may be a reflection of a shift that has taken place over the same period from an undersupply to an oversupply versus demand in the engi-

neering labour market. I believe it also reflects a trend towards commoditization of some traditional engineering scopes of practice, along with offshoring of engineering work to economies with lower wage and overhead costs (neither of which factors affect law or medicine).

In terms of influence with the public in general and our governments in particular, I assert we also lag the same senior professions. Several systemic factors contribute to engineering's relative lack of influence:

- Most doctors and lawyers require their licences to practise (our publicly-funded healthcare system and our courts enforce this requirement). Only about a third of engineers require licences to practise (based on a requirement to sign and seal their work products that is enforced by the recipient of those products);
- The average member of the public is a client of both doctors and lawyers, but not of engineers (most engineering work is done for business entities and governments);
- Ironically, the public does not see engineers as protecting their interests (health, safety, well-being, prosperity, etc.) to the same extent as doctors and lawyers; and
- Engineers tend to be less politically active and less assertive of their self-interest than other professionals.

With respect to the attitudes and commitment of PEO licensees to their profession, the evidence suggests we have some work to do to change the ethos of our profession. While we have a substantial body of volunteers who are highly committed to the organization and heavily involved in its leadership and operations, the majority are not engaged beyond payment of their annual licence fees. Participation in council elections could best be described as apathetic. I conclude that most members take

their profession and its regulation for granted, and are content to go about their daily lives without direct involvement (other than occasional grumbling about its ineffectiveness at improving their lot in life).

ENGAGING IN CHANGE

So what have we done as a profession to address these weaknesses? Well, first off, we created a separate organization—the Ontario Society of Professional Engineers (OSPE)—to advocate for the economic and professional self-interest of Ontario's licensed professional engineers. Ironically, OSPE membership (which is voluntary, but inexpensive relative to other professional advocacy bodies) is undersubscribed at roughly 10 per cent of PEO licensees. This suggests that professional engineers are reluctant to invest in raising the profile and status of their profession and its rewards. OSPE needs the support of many more professional engineers if it is to realize its full potential.

Another major initiative of the past decade has been development of our Government Liaison Programs, which are focused on establishing working relationships between member volunteers and their local politicians at all levels of government. I believe these programs have been highly successful at educating politicians about the important role engineers play in our society, and at informing them of the issues we face in our professional self-regulation on behalf of the public. They have also contributed to the development of public policy in engineering-related subject areas, such as energy, transportation, innovation and infrastructure renewal. Our governments are listening to us, but we are still not at the stage where they are following our advice.

One area in which professional engineers have long demonstrated their commitment to the public is that of education outreach. I am proud of the way so many of my colleagues have volunteered their time to encourage young people in their STEM studies, and to help them understand what engineers do and why it matters.



CLEARLY, WE'VE BEEN WORKING HARD AT MANY FACETS OF SUSTAINABILITY. BUT IN MOST OF THEM, WE HAVE YET TO REACH A TIPPING POINT WHERE THEIR INTENDED RESULTS REALLY START TO FLOW. SO WHAT DO WE NEED TO DO TO RAISE OUR SUSTAINABILITY TO THE NEXT LEVEL?

When we launched the Engineer-in-Residence (EIR) program some 20 years ago, our vision was that future generations of Ontarians would have a better understanding and appreciation of engineering and its contribution to society. The EIR program has indeed impacted many young lives in a positive way, but it needs to be running in a lot more schools to realize that vision.

Other programs, such as National Engineering Month (a month-long celebration of engineering in the month of March with a focus on youth) and 30-by-30 (a national program with the goal of having at least 30 per cent of new licensees be female by the year 2030), and many others too numerous to mention, have been devised to impact how our profession is perceived by the public and by potential future members.

TAKING IT TO THE NEXT LEVEL

Clearly, we've been working hard at many facets of sustainability. But in most of them, we have yet to reach a tipping point where their intended results really start to flow. So what do we need to do to raise our sustainability to the next level? Let me suggest two major initiatives.

The first would be a public awareness campaign that focuses on the many ways licensed professional engineers protect the broadly-defined public interest, day in and day out. Think of this as a branding exercise, akin to the one that the Chartered Professional Accountants (CPAs) have been airing for the past several years. (The irony of that program is that many of the scenarios in which CPAs are portrayed are more in the domain of engineering than of accounting.) I am pleased to inform you that council has recently established a task force to develop such a campaign, which is the legitimate purview of PEO because it has proven difficult to regulate engineering in the public interest when the public doesn't understand what needs to be regulated, and why, and how.

The second would be a concerted effort to establish, through demand-side legislation, exclusive scopes of practice for many more engineering activities than are covered today. The broad definition of the practice of professional engineering we have in the *Professional Engineers Act* is not sufficient to ensure that all applicable engineering work is performed by licensed individuals because it is next to impossible to enforce in an industrial/commercial setting. What we need is legislation that requires more engineering work products (rather than just building drawings) to be signed and sealed, and puts the onus on their recipients to demand it. Governments and industry need to understand that we cannot be expected to regulate engineering in the public interest so long as engineering activities are effectively excluded from PEO's regulatory reach.

Taken together, I believe these two measures would go a long way to enhancing our ability to protect the public interest, and to ensuring the sustainability of our self-regulating engineering profession for the future. **e**

LESSONS OF ELLIOT LAKE MAKING THE ROUNDS AT CHAPTER PRESENTATIONS

By Michael Mastromatteo



As Ontario's engineering community awaits the verdict in the case of the former engineer charged in the Algo Centre Mall collapse in Elliot Lake nearly five years ago, lawyers continue to debate the significance of the disaster for the engineering profession.

Robert Wood of Sault Ste. Marie, Ontario was the last person to inspect the mall roof before its collapse in June 2012. Wood, whose licence from PEO was under suspension at the time, declared the mall structurally sound in an inspection he undertook in April 2012, 10 weeks before the collapse.

The partial collapse of the mall's roof parking deck killed two Elliot Lake residents and caused severe economic disruption in the northern Ontario community.

He was arrested in November 2014 and pleaded not guilty to two counts of criminal negligence causing death and one count of criminal negligence causing bodily harm. The verdict of his trial is expected on July 25.

Following the collapse and subsequent public inquiry, legal experts have looked into the implications of the disaster for the engineering profession.

Todd Storms, LLB, of the Kingston, ON-based firm Templeman Menninga LLP is one lawyer who has become a familiar face at PEO chapter meetings. He has made presentations on the legal implications of the Elliot Lake inquiry to nearly a dozen PEO chapters over the last 13 months.

Most recently, he spoke at the Lake Ontario Chapter, and in November he spoke to engineers at the Peterborough Chapter. He is also scheduled to speak at five more chapters, including Grand River, Toronto Humber and East Toronto, throughout 2017.

Storms, who represented engineers and an engineering firm during the criminal investigation in the Elliot Lake disaster, cited the need for standards and a regular timetable of building safety inspections as among key lessons stemming from the Elliot Lake experience.

His observations are especially important now as PEO is about to unveil its Practice Evaluation and Knowledge (PEAK) program aimed at gathering data from licence holders as to their efforts to expand their knowledge and competence activities.

Although there was no evidence presented at the Elliot Lake inquiry that a continuing professional development program would have prevented the mall collapse, one of the major recommendations of the inquiry was that PEO institute some form of professional development and competence assurance by November 2014.

PEO BRINGS NEW DATA TO INDUSTRIAL EXCEPTION REPEAL CAMPAIGN

By Michael Mastromatteo

PEO's case for repeal of the industrial exception (section 12(3)(a) of the *Professional Engineers Act*) took a new turn with an appearance before a government committee reviewing the fate of Bill 27, the Ontario government's *Burden Reduction Act, 2016*.

Bill 27, a bill ostensibly aimed at reducing bureaucratic red tape, contains a clause keeping the exception in force permanently—this despite an earlier government promise to repeal it.

PEO President George Comrie, P.Eng., FEC, was invited to address the Standing Committee on General Government on February 22. He was joined by Registrar Gerard McDonald, P.Eng., Ontario Society of Professional Engineers (OSPE) Past Chair Karen Chan, P.Eng., and Barry Steinberg, P.Eng., C.E.T., chief executive officer of Consulting Engineers of Ontario (CEO).

Comrie reiterated the PEO position that the repeal is not red tape and that leaving the exception in force constitutes a significant gap in worker safety in the manufacturing sector.

"As many of you know, we have been working very hard with the government to strengthen our diligence with respect to protecting the public interest and, according to all accounts, we are doing a good job," Comrie told legislators. "Now we're being asked to turn a blind eye to one specific area of practice. We cannot do this without letting the public know we will not be protecting them."

Prior to Comrie's appearance before the standing committee, PEO released a copy of its *Repeal of the Industrial Exception Data Gathering and Analysis Research Project Final Report*. In researching the report, PEO found evidence that engineering work performed by unlicensed persons led to serious workplace injuries and at least two fatalities.

PEO believes industry may be interpreting the exception more broadly than it was intended and that repeal of the exception ought to be proclaimed by the government as soon as possible.

The report includes a number of recommendations designed to improve worker safety in the manufacturing sector, most of which focus on increased communication between the Ministry of Labour and the engineering regulator.

In the event the repeal is not implemented, PEO recommends continued monitoring of monthly court bulletins to identify any workplace incidents that may be of interest. PEO is also seeking copies of relevant investigation reports for review and to take action, as required, to raise awareness of the associated engineering relevant to these incidents.



MANITOBA REGULATOR REVIEWING RESULTS OF PROMOTIONAL CAMPAIGN

By Michael Mastromatteo

Engineers Geoscientists Manitoba began the new year analyzing results of its recent “Engineers are Everywhere” publicity campaign aimed at presenting engineering as a rewarding, vibrant career choice.

The campaign, which ran from October 1 to December 31, 2016, included advertisements on TV and radio, as well as movie theatre presentations, newspaper inserts and even bus and transit shelter posters. It cost the regulator about \$168,000.

“All other professions are peppering the public with messaging, advertising and branded imagery,” says CEO and Registrar Grant Koropatnick, P.Eng., FEC. “In Winnipeg, you regularly see the dentists, CPAs, chiropractors, nurses, massage therapists, medical lab technologists, all spending dollars on public ad campaigns. If you’re not doing the same, you’ll be forgotten in the public arena.”

Koropatnick says the goal is to have a high percentage of the public know and recognize “P-E-N-G” as professional engineer. Before the ad campaign, about four out of 10 Manitobans recognized the P.Eng. designation, but Engineers Geoscientists Manitoba would like to see that number increase as a result of the campaign.

He added that a research group completed a pre- and post-campaign survey based on P.Eng. awareness in Manitoba. “We’re waiting to see if the results changed based on the advertising,” Koropatnick says, adding that future rounds of advertising using the same messaging will occur as funds become available.

To coincide with the public awareness campaign, the Manitoba group has stepped up its government

relations, student and educational engagement, and industry partnerships and dialogue.

Engineers Geoscientists Manitoba is calling on its 8000-plus members to make the message more personal and more relevant to the people they come into contact with on a daily basis. The regulator is also encouraging engineers and geoscientists to exploit social media to bring more attention to current or past work.

The Manitoba effort is similar to an initiative under consideration by PEO. In September 2016, PEO council approved a plan to establish the Public Information Campaign Task Force (PICTF) with a mandate of promoting the value proposition of professional engineering.

In February, council approved the terms of reference for the task force and the appointment of seven task force volunteers.



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RETAINING FEMALE TALENT ACROSS ALL LEVELS

By Mark Bowling

Mercer and the Ontario Society of Professional Engineers (OSPE) have worked in partnership to produce the 2016 Mercer OSPE National Engineering Compensation Survey. With a legacy of over 60 years, surveys are a powerful tool for understanding compensation for a range of engineering specialties across six levels of responsibility. This year's survey unveiled important themes related to diversity in the workplace.

Although several Canadian provinces and territories now require companies to report on their efforts to recruit more women to boards and executive roles, women only occupy approximately 12 per cent of corporate board seats in Canada. The minister of innovation, science and economic development has not ruled out quotas to drive progress forward and, in fact, some studies have suggested there's a financial benefit for companies that embrace diversity at the board level. Mercer has conducted global research on women in the workplace, designed to uncover the critical drivers of a successful gender diversity strategy. According to this research, titled *When Women Thrive, Businesses Thrive*, improvements to diversifying hiring at the highest levels are not translating fully through an organization—something we see clearly in the Mercer OSPE National Engineering Compensation Survey results.

FEMALE REPRESENTATION IN ENGINEERING

Data from the Mercer OSPE National Engineering Compensation Survey from 2011 to 2016 shows little to no gain in female representation in Ontario across the OSPE engineering responsibility levels—with A representing the entry level to F representing senior management/specialists (see Figure 1).

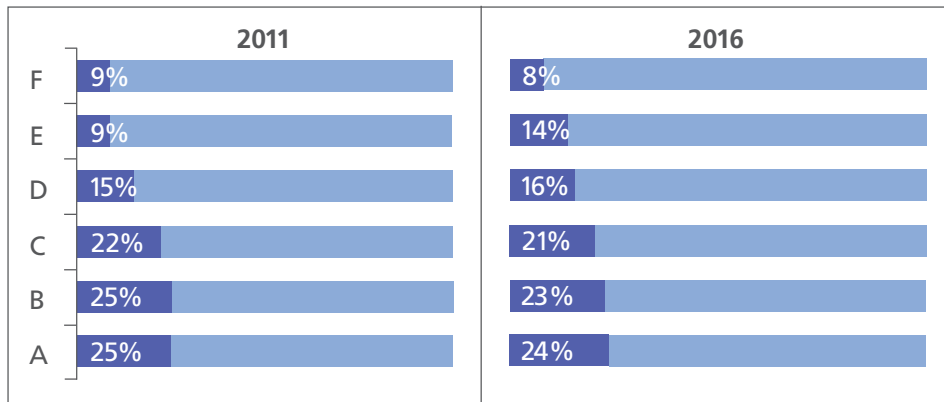


Figure 1: Proportion of female engineers in Ontario by OSPE levels in 2011 versus 2016

WHY FEMALE ENGINEERS LEAVE

Data in the 2016 survey related to voluntary turnover rates suggests that female engineers are most likely to leave an organization due to career change (38 per cent), followed by personal/family reasons (31 per cent) and lack of career/training opportunities (25 per cent), as opposed to reasons cited at a higher percentage for men, such as relocation (28 per cent for men vs. 19 per cent for women) or base salary (24 per cent vs. 13 per cent). There are a number of personal/family type issues that could contribute to lessening female representation through the typical career progression, such as the cost of childcare, eldercare responsibilities and lack of work flexibility.

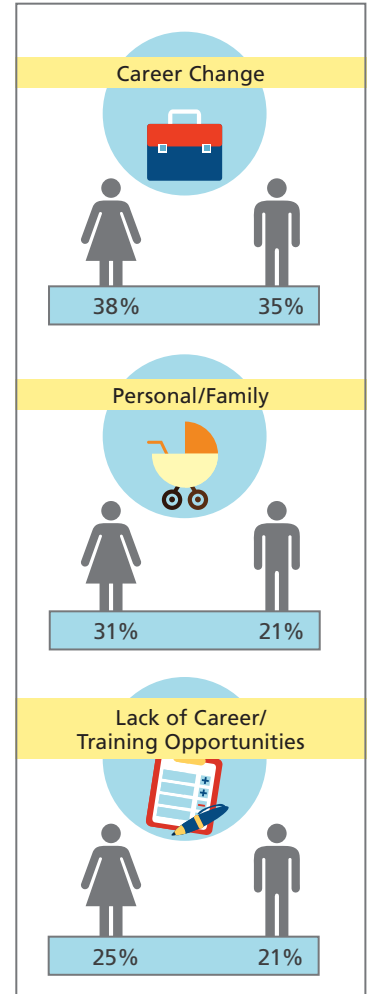


Figure 2: Top reasons female engineers leave

STRATEGIES TO RETAIN FEMALE TALENT

Companies must assess strategy and programs to create meaningful improvement to gender equality across all levels, not just at the top. Building a strong pipeline of female talent and maintaining a long-term view will help support and sustain the ability for women to reach senior and executive roles now and in the future.

continued on p. 12



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continued from p. 10

Flex programs, for example, can be a great addition to a company’s policies, but effective management and training are also critical. Additionally, when employees do take advantage of leave policies, such as maternity leave, companies should guard against letting these decisions lead to any unconscious biases during reward and promotion decisions.

FEMALE VERSUS MALE COMPENSATION

Although not cited as the primary reason for leaving, as women progress in their career, their median compensation tends to lag behind that of their male counterparts (see Figure 3), a factor that appears to be correlated to a slower career progression in general.

Furthermore, Mercer’s 2016 survey found that there is a noticeable gap in base pay between men and women at the senior levels—a discount of approximately 5 per cent at level E and 10 per cent at level F (see Figure 4). When assessing this data, it is important to

consider other factors that contribute to setting pay levels, such as tenure and years of experience, prior to concluding that an inherent bias exists. With that said, organizations should review pay and performance ratings by gender to check for inequalities, and ensure disparities do not translate into opportunity differences.

IT’S TIME TO TAKE ACTION

Ultimately, addressing opportunities for advancement and ensuring equality can lead to greater female representation at all levels of the workforce. Companies that make a concerted effort to attract, retain and engage women better position themselves to help women—and the organization—succeed. What story does your company’s data tell?

ABOUT THE SURVEY

The Mercer OSPE National Engineering Compensation Survey helps establish meaningful criteria for engineering pay levels for the benefit of both engineers and employers of engineers. Compensation and workforce metrics data for almost 30,000 engineers nationally across six engineering responsibility levels and 14 job types were collected from 229 organizations in both the private and public sector. The survey results are available in PDF and in an online format through Mercer WIN, allowing employers to assess their organization’s competitive position and analyze market data. The design and implementation of the survey was overseen by an advisory committee

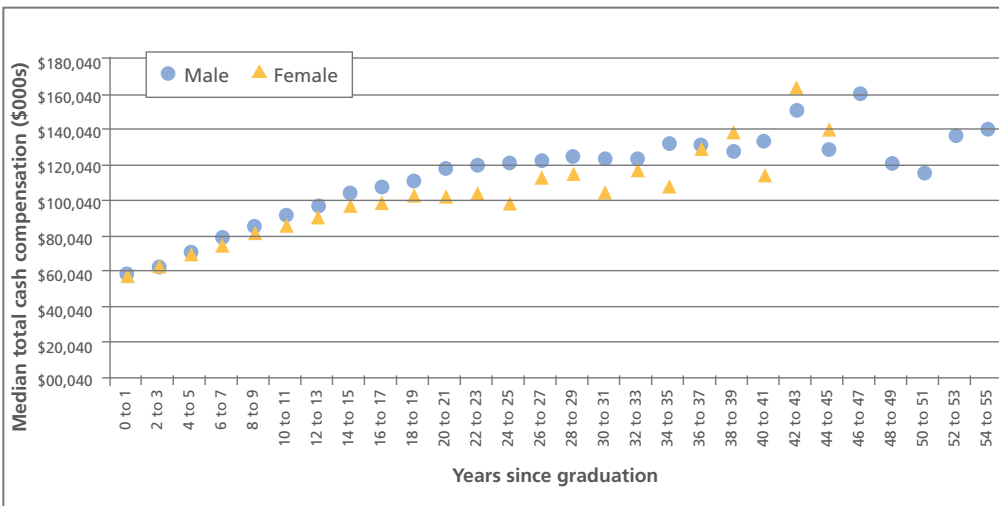


Figure 3: Average pay of female and male engineers by years since graduation

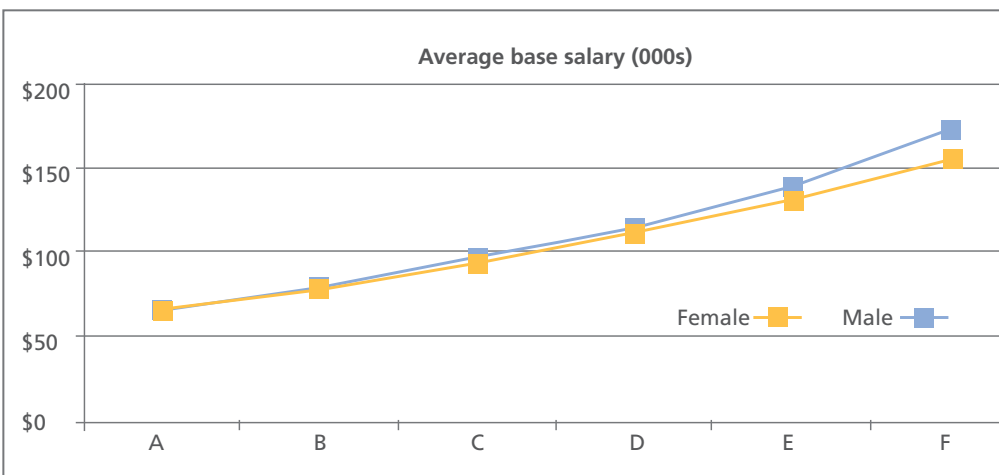


Figure 4: Average base salary of female and male engineers by OSPE levels

comprising of representatives from industry, as well as the engineering and human resources communities. The committee ensures that the survey remains a current and reliable resource on compensation for engineers across Canada. Employers can order the 2016 Mercer OSPE National Engineering Compensation Survey by contacting Mercer at imercer.com/engineering, 800-333-3070, or info.services@mercer.com. OSPE members can access a complimentary copy of the member market compensation summary online at www.ospe.on.ca.

For more information about Mercer's *When Women Thrive, Businesses Thrive* Global Report, visit www.mercer.com/our-thinking/when-women-thrive.html.

Mark Bowling is a senior associate with Mercer Limited.

BITS & PIECES

It took 84 years to finish the Trent-Severn waterway that connects Lake Ontario to Lake Huron.



A team of five biomedical engineers in Edinburgh, Scotland created the first working bionic arm in 1993.

A new "underwater" dining experience can now be had at the world's highest lift lock in Peterborough, ON.



Toronto Transit Commission (TTC) Notification of Upcoming Request for Information for Scheduling & Dispatch System for Wheel-Trans



Wheel-Trans

TTC is set to release an RFI in April 2017 for the Wheel-Trans Scheduling and Dispatch (WTSD) system. The RFI release is a major milestone within the TTC Wheel-Trans 10-Year Strategy.

As part of the strategy, TTC Wheel-Trans is introducing a new service delivery model using all of the TTC services available to Wheel-Trans customers. This includes both specialized door-to-door transit and conventional transit services such as accessible bus, subway and streetcar.

To offer our customers spontaneity of travel, TTC Wheel-Trans is issuing an **RFI for the design and development of a smart multi-modal trip reservation, scheduling and dispatch system**. We are interested in hearing from vendors with the following strengths and offerings:

- multi-modal and on-demand trip booking with real-time optimization of schedules
- integrated dispatch and on-board equipment
- microtransit functionality
- customer portals (mobile device, web, etc)

The RFI is targeted for release via Merx in April 2017.

- Respondents will be asked to provide a matrix to gauge the current state of practice in the industry, as well as provide demonstrations of their product offerings
- RFI responses will be used to further refine the RFP

Full RFP is set to release for late summer 2017.

PEO GUIDELINES SET STAGE FOR LAUNCH OF U OF T FORENSIC CERTIFICATE PROGRAM

By Michael Mastromatteo



The University of Toronto's (U of T) engineering faculty has approved a new certificate in forensic engineering program that its founder believes will develop well-rounded practitioners with investigation skills over and above those required of expert witnesses in court cases.

The university's undergraduate academic certificate in forensic engineering is being offered for the first time starting this fall.

Doug Perovic, PhD, P.Eng., a professor in U of T's department of materials science and engineering, and one of Canada's leading forensic investigators, says the certificate program is an opportunity for students to develop investigation skills beyond what is imparted in existing programs.

Forensic engineers have some profile in court cases where they serve as expert witnesses. However, Perovic believes there are many new avenues where an engineer's investigative skills will be in much higher demand.

"The certificate in forensic engineering will create a unique opportunity for interested students to gain specialized expertise and recognition for a personal and professional commitment to enhanced engineering investigation skills," Perovic told university executives last fall.

He adds that while forensic engineering is often associated with causes of material failure and catastrophe, its scope extends to other areas of public protection, including deterioration in infrastructure, product quality, procedural practice improvement, improved engineering design practices and the revision of codes and standards for public safety.

Perovic says PEO's work in producing guidelines on the role of expert witnesses (2011) and forensic engineering investigations (2015) played a role in the creation of the new certificate program.

"Many years ago I worked with [PEO] for an *Engineering Dimensions* feature on nanotechnology," Perovic said in a January 17 interview. "At that time I suggested that in the future you consider doing a feature on forensic engineering since this was a growing field. The 2011 *Engineering Dimensions* issue was instrumental in helping get the constellations aligned for our new certificate. PEO's announcement of the new forensic engineering guideline in 2011 and the ultimate approval of the guideline in 2016 helped raise the awareness of this important practice."

Perovic suggests a formal university curriculum in forensic engineering will put the spotlight on an "undervalued engineering practice" that is instrumental in keeping society safe in subtle but vital ways.

PEO HONOURS 10 THROUGH 2017 ORDER OF HONOUR AWARDS

By Duff McCutcheon

This year, PEO will induct two Companions and eight Members into its Order of Honour. The Order is an honorary society that recognizes professional engineers and others who have rendered outstanding service to the engineering profession in Ontario, primarily through the association. The honourees will be recognized at a ceremony on Friday, April 21, held in conjunction with PEO's annual general meeting in Thunder Bay, Ontario.

Denis Dixon, P.Eng., FEC, who will be inducted as a Companion, has been serving the association in various capacities since 1990 when he was chair of PEO's Brampton Chapter. During his tenure as PEO president, Dixon focused on PEO's core regulatory functions with an eye on maintaining positive relations with the Ontario attorney general, administrative efficiency and the best use of association resources. He also sought greater member participation in the governance and administration of the profession.

The Elliot Lake Algo Centre Mall disaster occurred during his presidency and he became part of a team that represented PEO in subsequent investigations, using his extensive building experience together with knowledge of PEO to assist with the Elliot Lake Commission of Inquiry. Over the years, Dixon has served on many PEO committees and task forces, including chairing the Professional Standards Committee, Technologist Licensure Task Force, Consulting Engineers Designation Committee, and Audit Committee. Those who have worked with him have admired his guidance, knowledge and personal effort in these roles.

Catherine Karakatsanis, P.Eng., FEC, FCAE, who will be inducted as a Companion, is the only engineer in Canada to have led a provincial regulator (PEO), the provincial engineering advocacy body (the Ontario Society of Professional Engineers) and the national engineering body (Engineers Canada). She has also chaired or been a member of dozens of professional committees.

Under her leadership as PEO president, Karakatsanis created a collaborative environment that brought council together to accomplish many important initiatives. She

inspired PEO to become a world leader in self-regulation—a vision that the current council continues to live up to. And during her tenure, she led changes to PEO regulations in response to Bill 175 (*Labour Mobility Act*) and successfully led the first major amendments to the *Professional Engineers Act* in more than 25 years, which included interprovincial mobility and professional competency requirements.

As president of Engineers Canada, she worked closely with the provincial regulators to deliver national programs that continue to have a positive impact on the profession and its public profile. Karakatsanis has also worked hard to promote and increase the involvement of women in the profession, having participated on PEO and OSPE committees, delivering numerous lectures on engineering and serving as a role model for female engineering students and young engineers.

Stephen Favell, P.Eng., FEC, who will be inducted as a Member, is a 26-year volunteer on the Kingsway Chapter executive (with four years as chair) where he has exhibited a passion for the engineering profession and influencing others to contribute as leaders and volunteers.

Favell is a tireless organizer of activities that engage and inspire chapter members. Some notable activities include: student scholarships, plant tours of local businesses, presentations of new technologies and chapter Government Liaison Program (GLP) initiatives. Favell has been instrumental in explaining the role of professional engineers in the global warming debate, including organizing a major workshop on Al Gore's *An Inconvenient Truth*, as well as a Climate Change at a Crossroads event attended by over 200 people. Favell doubled board membership—and member involvement—by recruiting new members at licensing ceremonies and chapter annual meetings.

David Grant, P.Eng., FEC, who will be inducted as a Member, has many years of volunteer service with the Ottawa Chapter, providing leadership as chair, secretary, executive and GLP member. He has been an outstanding ambassador for the engineering profession and an inspiration for the next generation of engineers.

Grant has worked in a wide variety of chapter committees and activities, including education outreach, GLP, recognition and service awards, social and technical events, member engagement, budgeting and working with engineering interns (EITs). As the lead for the chapter's licence presentation ceremonies, Grant believes in welcoming new colleagues in the profession in a warm and collegial

environment, while fostering and promoting partnerships with local businesses, engineering firms, associations, museums, and the engineering departments of Carleton and Ottawa universities.

Mohinder Singh Grover, PhD, P.Eng., FEC, who will be inducted as a Member, has demonstrated a passion for giving back to the profession and helping others in the community. Serving as both a volunteer and executive on the Willowdale-Thornhill Chapter, Grover has helped organize seminars and recommended speakers through his extensive professional network, mentored EITs through the chapter's mentorship program, and honoured members' contributions as chair of the chapter's Awards Committee. In addition to his service with the chapter, he has volunteered his time and expertise with PEO's Experience Requirements Committee, assessing the credentials of applicants and assisting with proctoring PEO exams.

Douglas Luckett, P.Eng., FEC, who will be inducted as a Member, has volunteered on the North Bay Chapter executive for several years, and has helped lead the chapter as chair, vice chair and past chair. One of his greatest contributions has been his ability to drive participation in chapter events, including the Engineers Day Symposium, Spring Fling Charity Event, Student's Night, bridge building and scholarship events.

In partnership with the Ontario Association of Certified Engineering Technicians and Technologists (OACETT), Luckett also transformed the North Bay Chapter's long-time golf tournament into a more meaningful event. Initially, the tournament was a networking event that included golf, dinner and prizes. However, in co-operation with the local robotics team, Luckett altered the format to introduce student participation and additional corporate sponsorship. The event now raises \$5,000 annually for the local robotics team—one of the world's top ranked teams.

Gregory Robert Merrill, P.Eng., FEC, who will be inducted as a Member, has a long volunteer history with the Simcoe-Muskoka Chapter, during which he has sat as treasurer, vice chair and, on two separate occasions, chair. His most important role, however, has been that of mentor to the chapter's EITs and aspiring executives. He has been instrumental in attracting new blood to the chapter board, resulting in increased and more diverse participation in the chapter. Merrill has also been an active participant with the chapter's GLP efforts and has used his connections in the central Ontario area to attract local politicians to chapter events. He has served as the chapter scholarship coordinator as well as a liaison with the local OACETT chapter to organize joint events during National Engineering Month.

Merrill is known for cutting through red tape to get things done expeditiously and correctly. He maintains an active line of communication with PEO head office to ensure the Simcoe-Muskoka Chapter is well connected with the provincial body and other chapters.

Tom Murad, PhD, P.Eng., FEC, who will be inducted as a Member, is a long-standing PEO volunteer, having served on the regulator's Experience Requirements Committee for the past several years. As head of Siemens Canada's Engineering and Technology Academy (SCETA), he leads the management and practice governance of all professional engineers from various provincial engineering associations within Siemens Canada. In this role, he maintains a database of all professional engineers within the company and conducts seminars focusing on PEO licensure, regulation and enforcement.



continued on p. 17

Do you know about the PEAK program?

IT'S COMING MARCH 31, 2017



On March 31, 2017, PEO will launch the Practice Evaluation and Knowledge (PEAK) program for all current and retired P.Eng., as well as limited licence holders.

This unique program is designed to improve the regulatory profile of PEO licence holders and encourage individualized continuing knowledge development.

Practising licence holders will be asked to:

- Complete both a practice evaluation questionnaire and an online ethics module prior to their licence renewal date; and
- Complete and report to PEO their recommended continuing knowledge activities prior to their subsequent licence renewal date.

Non-practising licence holders will be asked to:

- Make a declaration that they are not practising professional engineering; and
- Complete an online ethics module prior to the date of their licence renewal.

The PEAK program is:

- ✓ Unique
- ✓ Flexible
- ✓ Relevant

The PEAK program is not:

- ✗ A one-size-fits-all solution
- ✗ Bureaucratic
- ✗ Window dressing



Visit www.peopeak.ca to learn more about the program, test the practice evaluation questionnaire and see the sample reporting mechanism.

continued from p. 15

The SCETA academy also helps through its Work Integrated Learning Program to bridge the technical and leadership skills gap between academics and real-world engineering work for recent graduates. In addition, he has collaborated with Canadian post-secondary schools to implement the first industry lead certification in mechatronics systems—the Siemens Mechatronics System Certification program.

Julien Gilbert Samson, P.Eng., FEC, who will be inducted as a Member, has been a tremendous asset to the Chatham-Kent Chapter executive thanks to his positive attitude, advocacy and passion for the profession. At the chapter level, he has served in several executive capacities and has organized and volunteered at many chapter events, including the annual golf and curling tournaments. He has also volunteered with many National Engineering Month activities, including impromptu design competitions and science fairs for area schools. While working as chapter treasurer, he maintained a clear and organized budget and continues to mentor the current chapter treasurer.

At the provincial level, Samson served on PEO's Repeal of the Industrial Exception Task Force, providing valuable insights thanks to his experience in automotive and manufacturing environments. He has also been involved with numerous Western Regional Congresses, Chapter Leaders Conferences and Education Conferences.

Andrea Winter, P.Eng., FEC, who will be inducted as a Member, has been a tireless contributor to the ongoing success of the Chatham-Kent Chapter and an engineering ambassador to the local community and new graduates at her employer, Dillon Consulting Limited. Since joining the chapter executive in 2005, a few years after her graduation from the University of Guelph, Winter has served in several capacities in the chapter, including certificate coordinator, vice chair, chair and secretary. She has spearheaded numerous activities, such as the annual golf and curling tournaments, member appreciation events and AGMs, as well as leading member communications like creating and distributing chapter newsletters.

Most notably, Winter has been instrumental in promoting engineering among local youth and new graduates, including planning and executing impromptu design competitions, science fairs, and engineering PA day camps. She also visits local schools and community organizations, such as scouting and guiding, to demonstrate engineering projects to promote greater understanding and appreciation of STEM careers among students.

PEO ANNOUNCES RECIPIENTS OF 2017 G. GORDON M. STERLING ENGINEERING INTERN AWARD

Lorena Tere, EIT, and Rana Tehrani Yekta, EIT, have been named as recipients of this year's G. Gordon M. Sterling Engineering Intern Award.

A chemical engineering graduate of the University of Toronto and an executive member of PEO's Etobicoke Chapter, Tere has gained experience as an engineering intern at Hatch Consultants Ltd., a global engineering consultancy serving the mining, energy and infrastructure sectors. Since joining the firm in 2014 as part of the non-ferrous pyrometallurgy team, she has worked as a process and package engineer in various mining and metallurgy projects. At Hatch, Tere is invested in the continuing education of young professionals, as part of the Hatch Young Professional Committee. She is also involved in various organizations promoting increased diversity in the engineering profession and in the mining industry.

Tere has illustrated a commitment to leadership within the engineering profession through her volunteer work, including co-founding the Etobicoke Chapter EIT Subcommittee, developing a new chapter website and several outreach programs.

A structural engineering graduate of the University of Waterloo and a member of PEO's Willowdale-Thornhill Chapter, Tehrani Yekta has gained experience as an engineering intern at WSP, a Canadian multinational professional services firm. At WSP, she demonstrated strong leadership potential, leading tasks and assignments at both WSP's structural engineering and building sciences groups. She is currently an engineering intern at Reid Jones Christofferson, a civil engineering firm specializing in structural engineering, restoration, building science and parking planning services.

Tehrani Yekta has illustrated leadership through her volunteer work with the Willowdale-Thornhill Chapter, especially around her efforts advocating for women, education and the engineering profession. Some of her volunteer leadership highlights include chairing the chapter's Education Committee; serving on PEO's two-day Education Conference Organizing Committee; serving as a mentor for the Engineer-in-Residence program; and serving as president of the University of Waterloo's Civil and Environmental Engineering Graduate Association.

The G. Gordon M. Sterling Engineering Intern Award promotes leadership development and is available to engineering interns in good standing with PEO's EIT program. Those chosen for the award demonstrate a commitment to their chosen profession, an interest in assuming leadership responsibilities within it, and a readiness to benefit from a leadership development experience.



ONLINE UPGRADES IMPROVE INFORMATION EXCHANGE ACROSS THE BOARD

By Michael Mastromatteo

The engineering regulator has made recent adjustments to its online services to benefit both Certificate of Authorization (C of A) holders and general members.

For C of A holders, PEO has fine-tuned its C of A online directory, making it more attractive and easier to use.

As well, PEO added new functionality to the online services portal to improve data quality and ensure PEO has current contact information for licence holders. As of January 25, when a licence holder pays their renewal fees online, a pop-up will appear showing the contact information PEO has for them. Licence holders can update their email addresses using the online form or receive instructions on how to update their home or business addresses.

The new C of A directory, which went live in late October, features some key modifications to make the site more consistent with PEO's corporate branding and identity. The redesigned site includes improved search functionality, allowing users to search for information by company name, city or licence/ID number.

Based on the search parameters, a search of any C of A or temporary C of A in PEO's database should provide their status, such as active, suspended, cancelled or revoked.

The initiative is part of ongoing revamp that aims, in part, at making registry information more accessible to members and the general public.

The move also corresponds to the Expanded Public Information Model (EPIM), which allows PEO to fulfill its regulatory mandate to serve and protect the public interest by providing relevant information about licence holders through the online directory.

The C of A directory can be accessed at forum.peo.on.ca/cgi-bin/CofA/CofACheck.cgi.

The C of A and online service portal enhancements will help all licence holders update their information on file. Under section 50.1 of Regulation 941/90, all licence holders and holders of Cs of A are required to provide notice of any changes to the information in the PEO registers pertaining to the licence holder within 30 days of the change.

PEO is engaged in a number of projects to improve data quality, and licence holder co-operation is required. Members are especially reminded of their responsibility to keep PEO informed of any addresses changes.

FORGING NEW LINKS BETWEEN ENGINEERING AND HEALTH CARE

By Michael Mastromatteo



The latest advances in regenerative technology was on the menu at the recent McMaster University Biomedical Engineering Symposium held on January 5 and 6 in Hamilton.

Organized annually by McMaster School of Biomedical Engineering co-directors Michael Noseworthy, PhD, P.Eng., and Ram Mishra, PhD, the symposium brings together leaders in the expanding field of biomedical, biological and regenerative engineering and medicine.

Presenters at the 2017 event included professors Thomas Willett, PhD, P.Eng., of the University of Waterloo's Centre for Bioengineering and Biotechnology; Shirley Tang, PhD, P.Eng., of the Waterloo Institute for Nanotechnology; Gordon Hayward, PhD, P.Eng., of the University of Guelph's School of Engineering; and Milos Popovic, PhD, P.Eng., of the University of Toronto's Institute of Biomaterials and Biomedical Engineering.

In his presentation, Hayward focused on his present research in the design of biological and chemical sensors, particularly ones based on bulk wave acoustic devices.

Willett followed with a review of the mechanics and engineering of skeletal biomaterials and tissues. He also outlined the improved understanding of mechanisms determining the mechanical behaviour and failure of bone, and certain modifications due to aging, disease, and other causes that impact on such mechanisms.

Tang then discussed nanomaterials and nanoscale devices for biology and medicine.

In a 2012 interview with *Engineering Dimensions*, Noseworthy outlined the important crossover between traditional engineering and medical care, some of which was discussed at the 2017 symposium: "Health care is becoming a larger and larger challenge," he said. "It is imperative to work with the medical doctors as they define the problems. It is total team work. I think one role for PEO might be to let MD types know that biomedical engineers exist. There is a lot of room for local research and development and perhaps PEO can help facilitate this."

RISE OF BIOECONOMY HIGHLIGHTS NORTH BAY ENGINEERING SYMPOSIUM

By Michael Mastromatteo



PEO's North Bay Chapter, in conjunction with the Ontario Association of Certified Engineering Technicians and Technologists (OACETT), emphasized alternative energy potential January 27 as part of the community's 47th annual Professional Engineers' Day Symposium.

The morning session was moderated by North Bay Chapter Chair Lindsay Keats, P.Eng. An afternoon session was led by chapter member Matthew McEwen, EIT.

The event included presentations from Ontario Power Generation (OPG), local utilities and mining company officials who each discussed some of the engineering challenges in moving away from traditional fossil-fuel-based energy sources.

Keats says this year's symposium was one of the best attended on record, with nearly 120 people participating. "It seems we're getting more and more [chapter] members involved each year," she says.

PEO President-elect Bob Dony, PhD, P.Eng., represented the regulator at the event, while OACETT President Bob van den Berg, C.E.T., brought greetings from the technologists' association. Michael Monette, P.Eng., president of the Ontario Society of Professional Engineers (OSPE), spoke on behalf of the advocacy body.

Among the presenters was Roy Slack, P.Eng., of North Bay-based Cementation Canada Inc., an underground mining contractor. Slack suggested mining operations with high energy demands would be among the major beneficiaries

of alternative energy options. He suggested that more effective use of electrification in the mining industry would be advanced with the availability of cheaper power lines and transmission.

Brent Boyko, P.Eng., director, biomass business development with OPG, outlined the corporation's journey to the use of biomass fuel to power-generating stations in Ontario's northwest. He said with the phase-out of coal and the concerns about greenhouse gas emissions (GHGs), biomass fuel allows OPG to repurpose its thermal assets while making positive use of its existing infrastructure.

"The use of biomass fuels can provide a one-to-one displacement of GHGs from other non-renewable thermal generating sources, such as natural gas and imported coal generation," Boyko told North Bay engineers.

Matt Payne, P.Eng., of North Bay Hydro, outlined advances in the use of microgrids for localized electricity consumption. He described microgrids as electrical grids that are self-sufficient and can operate while disconnected from the centralized grid. Microgrids effectively integrate distributed generation with renewable energy sources, Payne said. "Typically installed by the community they serve, microgrids provide the required level of local generation with grid reliability, power quality and resilience in a cost-effective manner."

In keeping with the alternative energy theme, the symposium featured a presentation from Dawn Lambe, executive director of the Biomass North Development Centre, an association promoting the growth and sustainability of the Canadian bioeconomy. Lambe's talk focused on economic changes inherent in switching from fossil fuels to alternatives like biomass.

In addition to PEO and OACETT officials, the symposium included representatives from all three levels of government. North Bay Mayor Al McDonald represented the municipality, while North Bay MPP Vic Fedeli brought greetings from the province. The federal government was represented by Micheline Bédard, executive assistant to Nipissing-Temiskaming MP Anthony Rota.

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NOTICE OF ANNUAL GENERAL MEETING

In accordance with section 20 of By-Law No. 1, which relates to the administrative affairs of PEO, the 2017 Annual General Meeting (AGM) of the Association of Professional Engineers of Ontario will be held on Saturday, April 22, 2017, commencing at 8:30 a.m. at the Valhalla Inn, 1 Valhalla Inn Road, Thunder Bay. No registration is required.

As noted in section 17 of By-Law No. 1, the AGM of PEO is held for the following purposes: to lay before members the reports of the council and committees of the association; to inform members of matters relating to the affairs of the association; and to ascertain the views of the members present at the meeting on matters relating to the affairs of the association. Officers of PEO and other members of both the outgoing and incoming councils will be in attendance to hear such views and to answer questions. PEO President George Comrie, P.Eng., FEC, will preside and present his annual report to the AGM. The president-elect, officers and councillors for the 2017-2018 term will take office at the meeting.

PROCESS FOR MAKING SUBMISSIONS TO THE 2017 AGM

Submissions by members at PEO's AGM are a vehicle for members in attendance to express their views on matters relating to the affairs of the association, but are not binding on council. A member submission should clearly describe

the issue being addressed and indicate how it advances the objects of the *Professional Engineers Act*, which define the mandate and responsibilities of PEO. To ensure member submissions receive proper consideration at the AGM, members must submit typed submissions to Registrar Gerard McDonald, MBA, P.Eng., by no later than 4:00 p.m., Friday, April 7, 2017. Submissions must be signed by the mover and seconder, either of whom must be present at the meeting. Submissions will only be accepted by email to agmsubmissions@peo.on.ca. A guidance document on the content and format of submissions is available from the AGM page of the PEO website at www.peo.on.ca. Submissions received by the April 7, 2017 deadline will be published on the AGM page of the PEO website and included as part of the registration package.

Member submissions will be referred to the Executive Committee or council for consideration after the AGM. The mover and seconder of a member submission will be invited to address the submission at the meeting at which the submission is to be considered.

Gerard McDonald, MBA, P.Eng., Registrar

PROCEDURES FOR ADDRESSING SUBMISSIONS AT 2017 AGM

DURING THE MEETING

PEO's 2017 AGM will be conducted on Saturday, April 22 from 8:30 a.m. to 12:30 p.m. and continue, if necessary, from 2:30 p.m. to 3:00 p.m. Consideration of member submissions will begin at approximately 9:30 a.m. Submissions will be published on PEO's website before the meeting and included in members' registration packages.

The president will chair the portion of the meeting dealing with member submissions and manage the discussion. His direction must be respected.

The mover and/or seconder of a submission will be given up to five minutes to present their submission to the AGM. When time permits, members at the AGM may make comments of up to two minutes on the submission. The mover and/or seconder of a submission will be allowed two minutes for a closing statement. Members will then vote on the submission as an expression of the views of those present at the meeting.

In circumstances where the overall time allocation will not permit the above timing, the total amount of available time for submissions will be divided evenly among the number of submissions, and movers and seconders of submissions will be informed.

FOLLOWING THE MEETING

Member submissions will be referred to the 2017-2018 Executive Committee or council to consider whether to initiate any action on them. The mover or seconder will be invited to address the submission in detail at the meeting at which the submission is to be considered.

All submissions to the 2017 AGM will be considered during the 2017-2018 year, and their disposition reported to council and at the 2018 AGM.

Disposition of submissions to the 2017 AGM will be published on the PEO website and updated periodically, if necessary. Progress on 2017 submissions will also be published in *Engineering Dimensions* following the 2018 AGM.

FINDING MEANING (AND CUSTOMERS AND PROFITS) IN SOCIAL MEDIA DATA

By Duff McCutcheon

Ebrahim Bagheri, PhD, P.Eng., is not a mining engineer, but his software and semantic computing research is helping business, government and organizations mine vast troves of social media chatter to discover and analyze what people are thinking about, how they feel about it and what it all potentially means for the future.

Bagheri, an associate professor with Ryerson University's electrical engineering faculty, and his team have developed software tools and techniques that dig deep into social media content to find and interpret patterns amid the billions of global users and posts—recognizing positive and negative sentiments about a given subject and providing insights about the underlying meaning.

"I specialize in computational models that analyze user-generated content on the Internet," says Bagheri, recipient of an Engineering Medal in the Young Engineer category at the 2016 Ontario Professional Engineers Awards gala. "It is technology that can help predict individual or collective behaviour patterns for individuals, groups or society. It helps us to do predictive and prescriptive modelling of patterns, activities and trends within the social network. This means by observing what is happening in the world right now [on social media] we predict what is going to come. And if we can predict what is going to come, we predict the best course of action to take and prescribe that to organizations, governments and individuals."

For example, he is currently working with St. Michael's and Women's College hospitals in Toronto to examine the effects of scientific literature about antidepressant use among pregnant women on peoples' online perceptions. The study seeks to find out if the public's views on pregnant women using antidepressants changes at all immediately after the publication of a scientific paper on the subject.

"We want to see if this literature impacts people's perceptions online," he says. "Are people reacting to the study findings? Is there a shift in people's perceptions? Do people start talking about the study findings? Basically, is there a direct impact from the release of a scientific publication on the social perceptions on that topic?"

To date, the study has observed that the publication of a report will impact the extent to which people discuss the topic. Now the team is examining whether the publication also impacts peoples' sentiments around the topic. "If a publication comes out that is negative about a certain drug, will that also translate into a negative sentiment on social media?" he asks.

RESEARCH POTENTIAL

As more and more people take to social media to discuss, complain and praise, businesses and advertisers are taking



Ebrahim Bagheri, PhD, P.Eng., and his team have created cutting-edge software that recognizes positive and negative emotions in social media content, analyzes patterns and identifies emerging trends in social data.

notice of the potential in Bagheri's research. Vancouver-based predictive analytics company ThinkCX uses Bagheri's research in the advanced social media analytics tools it provides to clients for marketing, research and customer relations. Some Canadian telecommunications companies are also using this technology to identify potential customers.

"The telecoms space is saturated right now and new customers usually come from another provider—poaching each others' customer bases. We provide clients with a very targeted way of finding potential customers at the optimal point of time when their contract is about to expire and then hit them with very targeted advertising," says ThinkCX co-founder Aaron Nielsen.

ThinkCX uses Bagheri's technology to identify potential telecoms customers by analyzing social media signals. For example, it can look back historically at social media and find individuals who had just started a contract with a given provider by analyzing posts that say "just got my new phone from X" or posting a photo of their new phone. From that, ThinkCX can deduce that their contract is coming up in two years and identify potential customers to target at that time. "And once we've identified them we monitor their sentiments towards their current brand, or their interest in a new device coming out—all the kinds of things that would go through your own mind as a consumer—and use that to create a specific pitch based on their concerns and needs," says Nielsen. For example, if they have complained about outages, the potential provider can go in with extremely targeted messaging about the robustness of its network.

"What we've developed with Bagheri is technology that can actually pinpoint things like a customer has his contract expiring or is unhappy with their current provider or is in an area with poor network coverage. Basically it uncovers a wealth of signals that a particular customer is a good candidate to go after—the rifle approach to marketing versus shotgun," says Nielsen. [e](#)



Tailored to fit

PEO's new PEAK program takes a personalized approach in creating a sought-after regulatory profile of professional engineers in Ontario—one that distinguishes between practising and non-practising licence holders and, ultimately, provides greater accountability to the public.

By Michael Mastromatteo

A

After three years, two task forces and extensive research, testing and consultation, PEO is set to officially launch the Practice Evaluation and Knowledge (PEAK) program—an information-gathering tool to help ensure the association has sufficient information on each licence holder's practice to effectively carry out its role as the regulator of the profession.

Scheduled for official rollout on March 31, 2017, the PEAK program is a unique, flexible and relevant initiative that will provide PEO with an up-to-date and accurate regulatory profile of both practising and non-practising licence holders.

At that time, licence renewal notices to all current and retired professional engineers, as well as limited licence holders, will contain a request encouraging participation in the program.

The information-gathering component of the program is important in a number of ways. PEO has little information on the specialties many licence holders might be engaged in. The number of "structural engineering specialists," for example, cannot be answered with the information currently on hand.

As noted on the PEAK program website (www.peopeak.ca), PEO has a well-developed process to ensure applicants demonstrate high qualifications to enter the profession. However, it lacks a mechanism to measure whether practising licence holders have enhanced or even maintained their competence beyond initial licensure. In addition, the public has no way to verify if a practising licence holder's qualifications have been maintained.

ARE MEMBERS KEEPING UP TO DATE?

Competence assurance, it seems, requires more than simply paying one's licence fees every year and assuming that licence holders will always be mindful of their ethical responsibilities to practise only within their areas of specialty.

As Bernard Ennis, P.Eng., PEO's director of policy and professional affairs, notes, the regulator has been asked on numerous occasions, and for many purposes, if it has reliable data on the number of licence holders practising in specific fields of engineering (e.g. structural analysis). "We have had to tell people that without a thorough regulatory profile update, this information just isn't available," Ennis says.

The PEAK program is an essential tool to address this information shortfall. It is made up of three elements: an online practice evaluation questionnaire (Are you practising or non-practising?), a continuing knowledge reporting mechanism (for practising licence holders only) and an online ethics module (for all licence holders).

The practising/non-practising distinction is important in light of the fact that many PEO licence holders do not actually practise engineering in their current occupations.

PEO has received many questions over the last several months from members looking for clarity on the practising versus non-practising issue (see p. 29). In short, a person is considered to be practising professional engineering if he or she is carrying out any act of designing, composing, evaluating, advising, reporting, directing or supervising, or the managing of any of these acts as well as acts that involve the safeguarding of life, health, property, economic interests, the public welfare or the environment, and require the application of engineering principles.

It is made up of three elements:
an online practice evaluation questionnaire (Are you practising or non-practising?), a continuing knowledge reporting mechanism (for practising licence holders only) and an online ethics module (for all licence holders).

Under the PEAK program, licence holders who declare themselves practising are asked to complete both a practice evaluation questionnaire and the online ethics module prior to their licence renewal date. The questionnaire consists of 20 questions on the individual's engineering practice environment and takes about 20 minutes to complete.

The practitioner will then receive a recommended number of hours of continuing knowledge activities, based on his or her responses, to voluntarily complete and report to PEO prior to their next renewal date. The maximum recommended hours is 30, but this number will almost certainly be reduced based on risk mitigation and quality assurance measures that are part of the licence holder's practice environment. Annette Bergeron, P.Eng., FEC, chair of PEO's Continuing Professional Competence Program (CP)² Task Force, expects the average to come out at 16 hours, or two working days per year.

Those who self-identify as non-practising licence holders will only be asked to declare that they are not practising professional engineering and complete the online ethics module prior to the date of their licence renewal. Non-practising members will not be provided with a recommendation for any hours of additional knowledge or professional development.

It's important to note that completion of the PEAK program is not mandatory. The *Professional Engineers Act* (PEA) currently does not allow the association to make continuing professional education compulsory and does not provide PEO with the means to enforce compliance with a mandatory program. Generally, as a regulator,

Those who self-identify as non-practising licence holders will only be asked to declare that they are not practising professional engineering and complete the online ethics module prior to the date of their licence renewal.

however, PEO is authorized to collect whatever information the association deems is necessary to carry out its public interest mandate. As such, licence holders who do not complete any element of the program in the allotted time will still be able to renew their licence without incident, but their failure to complete elements of the program, however, will be publicly noted on PEO's online directory of practitioners.

PEAK IS DIFFERENT

PEO has dabbled with continuing professional development (CPD) type efforts in the past, but none ever took root in a meaningful way. As one of the last Canadian engineering regulators with no CPD program in force, PEO was challenged with developing something new and different, and which would earn buy-in from skeptical licence holders.

"There has historically been resistance to traditional CPD proposals, which is why it will be important for licence holders to take the upcoming year to learn how PEAK is different, rather than basing their response on assumptions about CPD and other province's programs," says Bergeron.

Practising licence holders may be surprised to learn they can design their own knowledge plan by choosing technical opportuni-



Bernard Ennis, P.Eng., director of policy and professional affairs for PEO, outlined the basics of the PEAK program January 21 during the Scarborough Chapter's annual general meeting.

ties that align with their specific area of practice. Continuing knowledge activities under the PEAK program are broadly interpreted and can include such things as:

- Reading technical correspondence or journal material;
- Attending informal learning sessions;
- Study groups or "lunch and learn" activity;
- Participating in seminars or technical committees;
- Professional knowledge activities taken to meet the program requirements of another provincial association, a technical association (such as the Ontario Association of Certified Engineering Technicians and Technologists) or an employer;
- Participation at a vendor's workshop;
- Training sessions on new products or technologies; and
- Online courses.

PEO is not concerned with how an individual learns but, rather, with what they learn. And PEAK program designers say knowledge activities simply must address at least one of the following five core engineering competencies to be considered acceptable:

- Applying engineering knowledge, methods and techniques;
- Using engineering tools, equipment or technology;
- Awareness of the risks and impacts of engineering work;
- Managing engineering activities; and
- Communicating engineering information.

PEO makes no recommendations on what sort of continuing knowledge activities a practitioner might pursue to fulfill the recommended number of hours. Choosing these activities is the responsibility of the licence holder. It is up to the

individual to decide what knowledge activities will enhance their particular practice.

Practising and non-practising licence holders are also asked to complete the online ethics module. Requiring about one hour to complete, this module is designed to acquaint licence holders with their ethical obligations as described in the PEA, and to provide them with an understanding of how these obligations should be applied in real life situations.

Bergeron remains hopeful that licence holders—even non-practising ones—will keep an open mind about the importance of PEAK, and bear in mind that a well-thought-out program, such as the one PEO is proposing, adds value to the P.Eng. licence.

TIMELINES

In the months leading up to the March 31 rollout, PEO officials fielded many questions from licence holders on timelines, how to comply with program expectations and if there will be any penalty for not completing elements of the program (see p. 26).

PEO's registrar is expected to provide a report to council at its June 2018 meeting with data showing the participation rates and other analysis, and provide recommendations to council on next steps.

Until then, PEO is continuing to promote the program as a practical and necessary measure. Some of its virtues come from what it is not. The (CP)² Task Force has emphasized that the program is not

(CP)² Task Force Chair Annette Bergeron, P.Eng., FEC, described the risk-based approach to PEO's continuing professional development efforts during the seven town hall meetings held in late 2015. Communication with licence holders has been a major part of the campaign in the months leading up to the rollout of the PEAK program.



“window dressing,” nor is it a one-size-fits-all exercise, which is a criticism levelled at CPD initiatives undertaken by other regulators. In addition, because the program provides several pathways for affected practitioners to complete the required elements, it can hardly be criticized as bureaucratic or arbitrary.

From the outset, PEO understood communication about the new initiative would be key to success; and since February 2016 the regulator has expended significant communication and outreach efforts to explain why the PEAK program is needed and how it is uniquely designed to provide greater information about the composition, skills, practice environments and continuing knowledge activities of the regulator's licence holders.

“The task force identified early on that the program will only be successful with two-way communication with licence holders,” says Bergeron. “It took a great deal of time and resources to conduct the seven town halls across the province in late 2015. Communication is also important due to the history of this topic with the licence holders. It's been important to communicate that this program does not repeat the

The (CP)² Task Force has emphasized that the program is not “window dressing,” nor is it a one-size-fits-all exercise, which is a criticism levelled at CPD initiatives undertaken by other regulators.

proposals of the past. Secondly, licence holder feedback has been critical to the work of the task force during every month of our work.”

She says task force members are grateful to licence holders who have provided valuable feedback from the beginning, through to the final testing of the practice evaluation questionnaire.

Bergeron is optimistic that the program's gamification component will ensure licence holders become more comfortable with PEAK over the next few months. She also believes all data collected during the rollout and implementation will play a big role in PEO's ongoing development of competence assurance.

Full information on the PEAK program, including a detailed frequently asked question (FAQ) page, is always available at www.peopeak.ca. [e](#)





What MEMBERS WANT TO KNOW ABOUT **PEAK**

By Michael Mastromatteo

ONE OF THE MOST CRUCIAL ELEMENTS of PEO's rollout of the Practice Evaluation and Knowledge (PEAK) program is communicating with licence holders exactly what is at stake.

In fact, an entire communications campaign, including *Engineering Dimensions* articles, the creation of a new microsite (www.peopeak.ca), social media posts and chapter presentations, is devoted to getting the word out there.

The PEAK program, the Continuing Professional Competence Program (CP)² Task Force and its previous incarnation, the Continuing Professional Development, Competence and Quality Assurance (CPDCQA) Task Force, have featured prominently at major PEO gatherings since the Elliot Lake inquiry into the 2012 Algo Centre Mall collapse put the spotlight on engineers' professional development efforts. PEO's 36 chapters have also been engaged to spread the

details on the PEAK program at the local level, and PEO staff and volunteers, including Registrar Gerard McDonald, P.Eng., and (CP)² Task Force Chair Annette Bergeron, P.Eng., FEC, have travelled the province over the last 24 months informing members of the program's requirements.

Complementing these traditional information channels, PEO's policy and professional affairs department, in concert with the (CP)² Task Force, have fielded a number of questions from members about basic elements of the program. What follows is a selection of the most commonly heard questions PEO has received from members at large concerning the PEAK program.

Q: What happens if I refuse to complete any of the three parts of the program after March 31, 2017?

A: This fact will be indicated on the licence holder's public, online profile. There will be no change in your licence status.

Q: I see the PEAK program comes into effect on March 31, 2017 and one must complete the different components prior to licence renewal each year. My annual licence renewal date is May 1—only one month after the program goes live. I can complete the questionnaire and ethics module in time, but depending on the number of recommended hours of professional development that comes out of my questionnaire responses, completing these hours might not be feasible in one month's time. What should I do?

A: Starting March 31, 2017, fee renewal notices will direct licence holders to complete the PEAK program by their licence renewal date. The first renewal notices being sent will be for those whose renewals occur in June. It is the June renewals that will be the first to complete the PEAK program. Licence holders will always have about six to seven weeks to complete the practice evaluation questionnaire and ethics module. You will actually be in the second-to-last group of the first year. The first fee renewal notice you will receive after the program goes live will be around February 2018. You will have from then until April 31, 2018 to complete the PEAK program questionnaire and ethics module.

Q: I am a member of the British Columbia and Manitoba engineering regulators as well as PEO. Under its Pro Development program, Manitoba requires members to complete 240 continuing professional development hours every three years. Do I need to comply with the PEAK program in Ontario? If yes, why?

A: First off, PEO accepts professional knowledge activities completed in another province

CONTINUING KNOWLEDGE ACTIVITIES THAT WERE TAKEN TO COMPLY WITH A MANDATORY PROGRAM IN ANOTHER PROVINCE, OR FOR A TECHNICAL CERTIFICATION, CAN BE COUNTED TOWARDS THE NUMBER OF HOURS RECOMMENDED IN ONTARIO.

or with another regulator. For example, if you have completed professional knowledge activities and applied them to your CPD requirement in another province, you can count the same activities in Ontario. For instance, if the PEAK program recommends that you should commit 20 hours to continuing knowledge activities, you do not have to do 80 hours for Alberta and another 20 hours for Ontario. Twenty hours of those counted in Alberta can be applied to your Ontario requirement. However, it's important to note that PEO, unlike other provinces, considers only *technical* learning opportunities [formal learning (university or other classroom courses), informal learning (conferences, seminars) and contributions to knowledge] as acceptable activities.

Q: I am already participating in the mandatory Ordre des ingénieurs du Québec (OIQ) system of 30 hours CPD every two years. What are my obligations vis-à-vis PEO?

A: At this time there is no *mandatory* continuing knowledge requirement in Ontario. The PEAK program provides a recommendation for the number of hours a licence holder should commit to continuing knowledge activities in the upcoming year. However, as this is not mandatory, licence holders do not have to comply with the recommendation.

PEO is encouraging licence holders who have undertaken continuing knowledge activities to enter this information into the reporting module, which will be available beginning April 1, 2017. Continuing knowledge activities that were taken to comply with a mandatory program in another province, or for a technical certification, can be counted towards the number of hours recommended in Ontario.

Q: Please advise how this program affects a "retired" engineer.

A: There are three parts to the PEAK program. The first part is a data collection module called the practice evaluation questionnaire. The first question in this questionnaire is "Are you practising or non-practising?" If you are retired and are no longer practising professional engineering, you can select the non-practising option. Once you have identified as non-practising, you do not have to complete the remainder of the questionnaire. In addition, you will not be given a recommended number of hours to commit to continuing knowledge activities, and you will not have to report any continuing knowledge activities.

As long as you retain your licence and remain a member of PEO, you will still have to complete an annual ethics refresher course online, even if you are retired. This is necessary because several retired members have been complained against and have been subject to PEO's discipline process for taking actions that were contrary to the *Professional Engineers Act*.

**Q: Where is the ethics refresher course held?
When and how much will it cost?**

A: The ethics refresher will be a free online module that licence holders can access at a time of their convenience. The module will be comprised of videos and other teaching materials. There is no cost associated with the ethics refresher course.


Q: What options are available to a licence holder who is currently not employed in the engineering field, but does not want to declare themselves as “non-practising”? Can an individual maintain their ability to practise by completing a certain number of education hours based on future or potential employment opportunities (i.e. upcoming or potential contract opportunities)?

A: Because the PEAK program is collecting data regarding your current status, if you are not employed in the engineering field you should designate yourself as “non-practising.” This will make no difference to your ability to practise. However, if you become employed in an engineering position during the year after completing the PEAK questionnaire, you will simply identify yourself as practising when you

THE ETHICS REFRESHER WILL BE A FREE ONLINE MODULE THAT LICENCE HOLDERS CAN ACCESS AT A TIME OF THEIR CONVENIENCE. THE MODULE WILL BE COMPRISED OF VIDEOS AND OTHER TEACHING MATERIALS.

complete the questionnaire at your next licence renewal. There is no requirement to complete a certain number of education hours based on future employment opportunities.

Q: I like that the PEAK program recognizes contributions to sharing knowledge and not just gaining or enhancing knowledge. If PEO creates a knowledge-sharing forum, it would best be implemented from the beginning, in my opinion. As professionals, we have a foundation of trust and commitment to excellence that would facilitate the quality of information being shared. Are there plans to create such a forum?

A: PEO will not have a portal or make any recommendations regarding specific professional education offerings. We are leaving this to practitioners to find the educational activities that are most relevant to themselves. 



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ARE YOU A PRACTISING PROFESSIONAL ENGINEER?

BY BERNARD ENNIS, P.ENG.

According to the *Professional Engineers Act*, a person is practising professional engineering if he or she is carrying out any act of designing, composing, evaluating, advising, reporting, directing or supervising, or the managing of any of these acts, and those acts that:

- a) involve the safeguarding of life, health, property, economic interests, the public welfare or the environment, and
- b) require the application of engineering principles.

The definition applies to all situations where this particular combination of intellectual activity, public safeguarding and methodology exists, regardless of whether the position is in industry, government or consulting. It is only these particular criteria that determine whether a person is practising. A person does not have to be employed in a firm holding a Certificate of Authorization in order to be classified as practising, nor does a person have to seal engineering documents to be considered a practising licence holder.

REAL SITUATIONS

To clarify how to apply these rules to your situation, let's look at some actual cases.

Sergio is a licence holder employed by the provincial government who reviews engineering reports and applications for approval. Clearly, he is evaluating the engineering work so the first test is met; he is carrying out an act of evaluation. Also, because the purpose of the review is to determine whether an approval should be granted, his work involves safeguarding of one or all of the public interests listed in (a) above. If Sergio makes judgments about the validity of the presumptions used in the report or whether the correct engineering methodology was used in this particular instance—in other words, if he makes use of skills or knowledge learned through an engineering education—then he is applying engineering principles. If all of these conditions are met, Sergio is, according to the *Professional Engineers Act*, practising professional engineering.

Whether a licence holder is or is not actually practising professional engineering is an important piece of information that PEO needs to properly carry out its mandate of regulating the profession.

It's also an important fact for licence holders to know to determine whether they are in compliance with the *Professional Engineers Act*. For instance, if you are practising—even in a volunteer, advisory, occasional, or part-time capacity—and providing services to the public, you need a Certificate of Authorization. If you intend to practise—even on a volunteer, advisory, occasional, or part-time basis—then you do not qualify for fee remission.

Currently, PEO identifies as non-practising only those licence holders who are on fee remission status; that is, licence holders who are retired, unemployed or on employment leave for medical, educational or parental care reasons. Individuals who are on fee remission undertake not to engage in any practice activities. Every licence holder who is not on fee remission or has not had his or her licence revoked, suspended or cancelled is automatically identified in the practitioner directory as practising.

However, it is clear that many licence holders who are working are not actively practising professional engineering. They could be engaged in another profession, such as law, medicine or finance. They might be real estate agents or high school teachers. In cases like this, identifying a licence holder as non-practising is relatively easy. In some other situations, such as sales or management of operations, the distinction between practising and non-practising can be blurry.



Now consider Susan, the plant manager for a manufacturing firm. Her primary activities are supervising, directing and reporting to senior management about the state of the manufacturing operations. Obviously, she is also carrying out many of the acts included in the first part of the definition. Since her objective is to make sure the operation is profitable, she is safeguarding the economic interests of the shareholders. As plant manager, she is responsible for ensuring compliance with the *Occupational Health and Safety Act*, so she is also involved in safeguarding life, health and property. However, if she only employs business and soft skills like budgeting and scheduling, and relies on the procurement of technical and professional services when needed, then she is not practising professional engineering.

YOUR QUESTIONS

Here are some typical questions about the distinction between practising and non-practising status we have received.

Q: Is a licence holder who is retired but works approximately 550 hours per year as an expert in civil and structural engineering for mediation, arbitration and litigation considered to be practising?

A: There is no minimum on hours of employment in the definition. Part-time work can still be classified as practising. In this case, the licence holder is providing expert opinion, which generally involves evaluating, advising and reporting. Since his work involves expertise in civil and structural engineering he is definitely applying engineering principles. And by providing his expertise in a matter where financial considerations are at stake, he is safeguarding someone's economic interests. This licence holder is definitely practising professional engineering. Also, because he is providing services to the public—that is, to a client—he must have a Certificate of Authorization issued by PEO.

Q: I am currently retired but may go back into practice with the right offer. Should I identify myself as practising?

A: PEO's PEAK program is interested in your current status, so declare yourself non-practising. Making this declaration does not prevent you from returning to practice and,

unlike many other professions, there are no requirements to update your knowledge and skills before resuming practice at this time. Please remember that if you are on fee remission you must notify the registrar immediately, in writing, if you resume the practice of professional engineering.

Q: I am employed but in a position totally unrelated to professional engineering. However, I want to utilize my engineering background so I volunteer with an organization that provides pro bono assistance to small businesses in need of experts. How should I identify my practice status?

A: If you are carrying out professional engineering work for these small businesses, or doing any similar volunteer work, then you are practising professional engineering. Also, in order to provide these services, you must be working under the auspices of a Certificate of Authorization. Carrying out professional work as a volunteer does not excuse you from the requirements of the *Professional Engineers Act*. [e](#)

Bernard Ennis, P.Eng., is PEO's director of policy and professional affairs.

A QUICK GUIDE TO DETERMINING WHETHER YOU ARE PRACTISING OR NOT

1. Look at your job description or think about what you have done in the course of your work over the last year. Were you involved in any of the activities listed in the definition?
2. Ask yourself, "What is the purpose of my work?" Can you say that your work is done in order to protect or safeguard something? Is that something one of the values or interests listed in the definition?
3. If your answer to question #1 is yes, did you rely upon skills and knowledge in technical subjects gained through your engineering education?

If you answered yes to all three questions, then you are practising professional engineering.

MARCH 26-30

13th Global Congress on Process Safety,
San Antonio, TX
www.aiche.org

March 2017



MARCH 27-31

Society of Petroleum Engineers
Oklahoma City Oil & Gas Symposium,
Oklahoma City, OK
www.speokcsymposium.org

April 2017



APRIL 4-7

Joint Rail Conference,
Philadelphia, PA
www.asme.org/events/joint-rail-conference



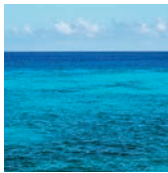
APRIL 2-6

Symposium on Elevated
Temperature Application
of Materials,
Seattle, WA
www.asme.org



APRIL 20-21

Mari-Tech 2017,
Montreal, QC
www.mari-tech.org



APRIL 9-13

SPIE Defense &
Commercial Sensing,
Anaheim, CA
spie.org/conferences-and-exhibitions/defense-commercial-sensing

APRIL 5-7

2017 MACH Conference,
Annapolis, MD
machconference.org



APRIL 21

PEO Order of
Honour Gala,
Thunder Bay, ON
www.peo.on.ca



APRIL 21-23

ASME Engineering
Festival (E-Fest East),
Cookeville, TN
efests.asme.org/east



APRIL 22

PEO Annual General Meeting,
Thunder Bay, ON
www.peo.on.ca



APRIL 26-28

International Conference on
Sustainable Design & Manufacturing,
Bologna, Italy
sdm-17.kesinternational.org



APRIL 30-MAY 3

Canadian Conference
on Electrical &
Computer Engineering,
Windsor, ON
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May 2017

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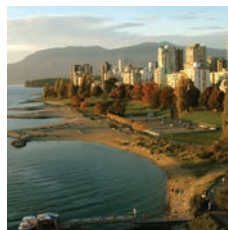
MAY 16-18

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MAY 1-4

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Houston, TX
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MAY 31-JUNE 3

Canadian Society for Civil
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Vancouver, BC
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A NEW APPROACH TO ENGAGEMENT

By Howard Brown and Blake Keidan

The beginning of 2017 saw a dramatic change in the way politicians are allowed to do business in Ontario: they are no longer able to attend fundraisers. Plus, corporations and unions are banned from making political donations. The new rules should be welcomed because they provide us with a more open government.

For organizations like PEO, there are implications to the way they build and maintain relationships with MPPs. As a result, PEO's Government Liaison Program (GLP) initiatives, such as Take Your MPP to Work Day and academies and congresses, have become the focus of PEO outreach.

CHAPTER TRAINING

One of the most important parts of the GLP is making sure PEO chapter volunteers have the tools they need to succeed. This is the goal behind PEO's academy and congress initiative, a one-day training session on government process and engagement.

This forum is where chapter members can hear from local MPPs and government relations professionals about their expertise. Guest speakers offer insights into how members can build strong relationships with local politicians. At the core of the program is the opportunity to learn about approaching and engaging MPPs, regional and municipal council representatives, political parties and community leaders on matters pertaining to the engineering profession. Engineers can also discuss issues concerning public safety and regulations, governing engineers as well as the development of Ontario.

"GLP regional academies offer GLP chairs an opportunity for professional development in the areas of government liaison activities," says PEO Manager of Government Liaison Programs Jeannette Chau, P.Eng. "Interfacing with politicians is not necessarily something that many engineers are exposed to, so it is important that they have the proper training and knowledge to do this effectively."

There are additional benefits, as the training is more local, and PEO can reach out to local MPPs and help foster the relationship between them and the members at the grassroots chapter level: "The smaller, regional settings for the academies allow for more one-on-one training and the ability to address specific needs and questions of individual GLP members," says Chau. "It allows for more time to gain a good understanding of the current regulatory issues facing our profession."

In the last five years, PEO has hosted 16 academy and congress programs. In 2011 and 2016 it held a full-day Government Relations Conference.

The 2016 Government Relations Conference, jointly hosted by PEO and the Ontario Society of Professional Engineers (OSPE), was held on October 26, 2016. The conference

keynote speaker was NDP Leader Andrea Horwath, MPP (Hamilton Centre). Attendees also heard from Arthur Potts, MPP (Beaches-East York), parliamentary assistant to the minister of the environment and climate change; Jim McDonnell, P.Eng., MPP (Stormont-Dundas-South Glengarry), PC government and consumer services critic; and Catherine Fife, MPP (Kitchener-Waterloo), NDP early years, childcare, economic development, employment, research and innovation critic, in a panel discussion.

MPPs AT WORK

Launched in 2013, the Take Your MPP to Work Day program allows PEO chapters to invite local MPPs to visit engineering companies. Through facility tours and discussions, the MPP becomes more familiar with the different aspects of the work done by PEO members.

"It is an opportunity to bring together three parties: PEO chapters, professional engineers at their place of business, and MPPs," says Government Liaison Committee Chair Darla Campbell, P.Eng. "The MPP gets to meet engineers and learn first-hand about the work of engineers. The MPP also gets to meet with a business (that employs engineers) in their community. The business gets to celebrate their successes with the MPP while highlighting the work of P.Engs."

PEO chapters have hosted 16 of these initiatives since its inception. Six events were held last year alone, including the first joint chapter event. Ministers, parliamentary assistants and critics from all three parties have taken part, expanding their knowledge of the engineering profession and building stronger local relationships.

MOVING FORWARD

Given the scale of change in the political rules, PEO members need to seek fresh ways to engage our elected officials. The work done over the past decade by PEO members to build strong ties with MPPs illustrates the success of our strategy. But now, a new approach is required so none of the momentum is lost. To ensure our standing, all members need to be part of the drive towards greater engagement in the coming months.

If your chapter is interested in hosting a Take Your MPP to Work Day or an academy and congress in 2017, contact Jeannette Chau at jchau@peo.on.ca. [e](#)

Howard Brown is president of Brown & Cohen Communications and Public Affairs, and PEO's government relations consultant. Blake Keidan is account executive at Brown & Cohen Communications and Public Affairs, and PEO's government relations coordinator.



NDP House Leader Gilles Bisson, MPP (Timmins-James Bay) (front row, centre left), and Timmins Mayor Steve Black, P.Eng. (front row, centre right), were guest speakers at PEO's Northern Region Academy and Congress in Timmins, Ontario. With them in the photo are (back row, left to right) then PEO student and government liaison programs coordinator Gonzalo Piñeros, EIT; Algoma Chapter representative Marc Pilon, EIT; Sudbury GLP Chair Mehwish Obaid, P.Eng.; Sudbury Chapter representative Alice Bom, P.Eng.; North Bay Chapter Chair Lindsay Keats, P.Eng.; Porcupine-Kapuskasing Chapter representative Wayne Mohns, P.Eng.; and (front row, left to right) Porcupine-Kapuskasing GLP Chair Tony Linton, P.Eng.; Lakehead Chapter representative Amalia Rey-McIntyre, P.Eng.; PEO Manager of Student and Government Liaison Programs Jeannette Chau, P.Eng.; and Porcupine-Kapuskasing Chapter Chair Michael Barker, P.Eng.

Labour Minister Kevin Flynn, MPP (Oakville) (far left); Indira Naidoo-Harris, MPP (Halton), minister responsible for early years, child care, and women's issues (far right); and Amrit Mangat, MPP (Mississauga-Brampton South), parliamentary assistant to the minister responsible for women's issues, and to the minister responsible for accessibility (second from right), participated in the first-ever joint Take Your MPP to Work Day event. With them in the photo are PEO Mississauga Chapter GLP Vice Chair Karanjeet Singh, P.Eng. (second from left), and PEO Oakville Chapter GLP Chair Jeffrey Lee, P.Eng. (centre).



Jeff Yurek, MPP (Elgin-Middlesex-London), PC health critic (back row, second from right), at a Take Your MPP to Work Day event hosted by PEO's London Chapter. Participating were (back row, left to right) PEO London Chapter members Kevin Spicer, P.Eng., Remona Johnson, P.Eng., Matt Miedema, P.Eng., Julian Novick, P.Eng., and Luke Seewald P.Eng.; Ontario Society of Professional Engineers (OSPE) Policy Analyst Patrick Sackville; former PEO London Chapter chair Oscar Avila, P.Eng.; Government Liaison Committee Chair Darla Campbell, P.Eng.; PEO London Chapter Chair Imtiaz Shah, P.Eng.; and (front row) Presstran Industries Department Leader of Business Development Tom Brier and PEO London Chapter GLP Chair Iretomiwa Olukiyesi, P.Eng.

COUNCIL APPROVES FUNDS FOR PEAK PROGRAM ETHICS MODULE

By Nicole Axworthy

510TH MEETING, FEBRUARY 2, 3, 2017

At its February meeting, council authorized up to \$300,000 from PEO's reserve funds to implement its new Practice Evaluation and Knowledge (PEAK) program ethics module. The funds will cover the cost of development, hosting and user support by external vendor ScholarLab.

This online multimedia module is one of the PEAK program elements that was approved by council in 2016. As outlined in the report of the Continuing Professional Competence Program (CP)² Task Force, the module is needed in order to ensure all licence holders—including those who are not practising—are aware of their ethical obligations under the *Professional Engineers Act*, and to provide licence holders with an understanding of how these obligations should be applied to real-life situations.

Staff will proceed to work with ScholarLab in order to implement the online learning module by March 31, 2017. (Find out more about the PEAK program and ethics module starting on page 22 of this issue.)

REVISED GUIDELINE

Council has authorized publication of a revised *Solid Waste Management* guideline, which provides guidance to those providing or retaining professional engineering services related to the planning, designing, constructing, commissioning, operating, monitoring or closing of solid waste management systems.

In 2013, PEO's Professional Standards Committee was instructed by council to form a Solid Waste Management Subcommittee to revise the current guideline, which had not been updated since 1993. The revised guideline takes into consideration any changes to legislation affecting the industry and professional engineering, and better reflects current practices. The new guideline will be available on PEO's website at www.peo.on.ca/index.php/ci_id/1834/la_id/1.htm.

PUBLIC INFORMATION CAMPAIGN TASK FORCE

Council has approved the terms of reference and proposed members for its new Public Information Campaign Task Force to examine a potential campaign that promotes public awareness of the role of PEO. The new task force consists of seven PEO members who have familiarity and demonstrated experience in marketing, advertising or communications.

PEO last undertook an independent marketing campaign in 1996–1998. It was also involved in a joint venture with Engineers Canada and other constituent associations in 2001–2002 and 2008–2009.

With its \$100,000 budget, the new task force is expected to engage an agency to assist with campaign development, including messaging and determination of rollout costs for potential delivery options. The team is expected to report back to council no later than April 2018 with proposed messaging, key audiences, communications channels, costs and other required resources, measurables, and a recommended course of action. **e**

NATIONAL VOLUNTEER WEEK

APRIL 23–29, 2017

Every year PEO volunteers dedicate time and energy to the engineering profession. Canada's National Volunteer Week is another great opportunity to recognize their efforts. PEO would like to thank you for your valued contribution, which benefits the association, the profession, and Canadian society as a whole.

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Use of “consulting engineers”

Bob Hurter, P.Eng., Orleans, ON

The Gazette article “What’s in a name? PEO’s restrictions on using engineering terms in business and corporate names” in the January/February 2017 issue of *Engineering Dimensions* (p. 22) was very informative.

However, it appears that one engineering term was overlooked in the article: “consulting engineers.”

My company was federally incorporated in 1978 while we were still in Quebec. We moved to Ottawa in 1983 and received our Certificate of Authorization from PEO on December 5, 1983. In all this time, we have referred to ourselves as “consulting engineers.” In fact, for a period of time, my company was a member of Consulting Engineers of Ontario.

Last week, while reading my company’s PEO profile for the first time in more years than I can remember, I noted a box that said “Permission to use ‘Consulting Engineers,’” to which the answer was “No.” Frankly, I was stunned as I had no knowledge that I needed PEO’s permission to use this term to describe my business activities even though I have held a consulting engineer designation for many years.

Digging a little deeper, I found the application form for *Permission to Use “Consulting Engineers” or a Variation Approved by Council*, and have since sent it along with the fee to PEO.

Perhaps this needs to be better communicated to the association’s members.

Comply and move on

Duncan Blachford, P.Eng.,
Gananoque, ON

At the Algo Centre Mall collapse inquiry, the inquiry commissioner, based on information presented, noted that PEO has a deficiency in that PEO has no way of knowing anything about those it licenses as far as being competent and “up to date,” and that it should institute a program to eliminate this deficiency. The Ontario government believes that PEO needs to act and institute such a program.

The concept of PEO intruding into our professional lives has not been well received by members. Almost all practising licensed engineers do, in fact, engage in improving their knowledge and expertise in their fields of practice through all sorts of formal and informal activities.

The political reality is that the government expects PEO to satisfy the commissioner’s recommendation or the government could step in and force a system upon PEO, or worse, operate a system with government bureaucrats. PEO’s task force on CPD has developed a simple system to gather data from members concerning CPD activities and coordinating it with practice risk to provide some simple guidance to members. This PEAK system has no component to value test CPD activities, which would be very intrusive to members and costly.

If the PEAK program can demonstrate that PEO does monitor the competencies of its members, then the government will accept this as satisfying the commissioner’s recommendation. So I suggest that members simply comply with the PEAK program and move on. Continued resistance will only cause greater problems for members in the future.

Correction: In “Shortlist spot a boost for profession’s diversity objectives” on page 19 of the January/February 2017 issue, we accidentally spelled Viola Desmond’s name incorrectly. We apologize for the error.

LETTERS TO THE EDITOR are welcomed, but must be kept to no more than 500 words, and are subject to editing for length, clarity and style. Publication is at the editor’s discretion; unsigned letters will not be published. The ideas expressed do not necessarily reflect the opinions and policies of the association, nor does the association assume responsibility for the opinions expressed. Emailed letters should be sent with “Letter to the editor” in the subject line. All letters pertaining to a current PEO issue are also forwarded to the appropriate committee for information. Address letters to naxworthy@peo.on.ca.

Life as an engineer

Frank Gue (Dare I sign P.Eng.?),
Burlington, ON

"P.Eng." is obsolete. I hope that catches your attention.

Our formal organizations wring their hands for years over things like the industrial exception, yet thousands of us earn or earned our livings working in what is clearly recognizable as that very industrial exception. Our professional handcuffs, which we call licensing and regulations, drift farther and farther away from reality.

Consider: Economists everywhere deplore professional licensing, with its exclusionary provisions intended to keep out enough candidates to maintain a professional monopoly, high wages, and special privileges. Examples: engineering, medicine.

Society is trying, with limited success, to cope with a wave or megatrend comprising vast technologies whose rates of change of change (ROCOG)

are far outstripping the ability of human beings to keep up. Examples: computerization, networking, digitization.

Newish terms like "nano degree" and "unbundling education" profoundly challenge our traditional view of a university education that equips us for life to do "engineering" using "engineering principles" (whatever those are, and which everyone admits have no definition).

Many of us are familiar with this unstable career path and, even though we are titled "BSc electronics" (mine) or some such, could never have been licensed or accredited as "professional engineers." Yet we have had satisfying and productive work for 30 or 40 years. Example: I have totally lost track of the number of my "micro careers"—Five? 10? I don't know, but they spanned everything from civil to thermodynamics to sociology to the writing of books. (That said, let it be acknowledged that my basic engineering with its civil, mechanical, etc. components has been an enormous thinking helper through it all.)

Our professional associations are not recognizing or coping with this 20th/21st centuries phenomenon. Perhaps we could reboot by taking note of a wise comment by one professor at U of A, who said: "You can learn engineering after you graduate. You're here to learn how to think."

Interested engineers would profit from reading "Learning and Earning," a short "special report" in *The Economist* from January 14.

Build locally

Lance Pope, P.Eng.,
Mississauga, ON

The latest *Engineering Dimensions* included the article

"Engineers still among leaders in meeting diversity challenge" and provided statistics regarding the number of international engineers coming to Canada over the past 20 years with a flattening over the past decade (January/February 2017, p. 30). I believe the reason for this flattening lies not in perceived barriers to entry in Canada but in the juxtaposition of the employment opportunity trade-offs of coming to Canada and a related, disconcerting trend in large engineering companies.

For a rational individual, the choice to leave one's home country and attempt to restart in another country is partially predicated on the perception of opportunities in the home country versus the barriers to entry of an adopted country and the lifestyle you can build there. If you are educated and opportunities to utilize your education exist locally, there is reduced reason to leave, so why go? This reduced migration dovetails with the ongoing trend of large Canadian engineering companies to outsource engineering to eastern countries, such as China and India. The explanation has been that clients demand high quality, low-cost engineering, so if overseas education is seen as equivalent and has suitable output quality with

today's "connectedness," the engineering output can be produced in the lower-cost environment.

Essentially, these engineering companies are saying that engineering is a commodity that can be managed in one country and produced in another. Unfortunately, engineers are not doing themselves any favours with this down-selling approach and should be touting the added value of our knowledge to everyone's lifestyle and options. The unintended consequence is that, while the client may be happy with the lower-cost outcome if suitably experienced engineers oversee the output, it ultimately results in a hollowing out of the engineering capability of the origin country in favour of exporting this expertise to the supporting country. I perceive this as a very short-sighted business decision with a negative feedback loop, ending, ultimately, in the demise of the home country capability and the migration of business to these alternate centres. It is quite likely that during this latest downturn in the resource industry that the loss of engineering positions has been magnified by this effect in an effort to stay in business.

When the uptick occurs, it will not likely result in increases in engineering employment since the jobs have already been shifted. The senior engineers who are well placed to ride this wave will ultimately retire and the graduate engineers who normally would be trained under them will find they do not have the capability or experience to replace them because this training has been outsourced.

This is a ripple effect that I believe will only magnify itself over the years, driving engineering capability into specialty niches with fewer and fewer participants. While countries see high tech as the future and coding may be the trend *de jour*, you have nothing if you cannot locally build the intellectual property to support ongoing industry and their employees into the future.



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